SKILLS

Analysis of skill development interventions in Andhra Pradesh

Cost-Benefit Analysis

AUTHORS:

Mansi Aurora
Economist
Sunay Policy Advisory

Dr. Rajesh Chakrabarti
Director and co-founder
Sunay Policy Advisory

Kushal Sagar Prakash
Associate Director
Sunay Policy Advisory

SECTOR EXPERT REVIEWERS:

Dr. Srinivas Surisetti
Chairperson, School of Livelihoods & Education, TISS

ANDHRA PRADESH PRIORITIES AN INDIA CONSENSUS PRIORITIZATION PROJECT

INDIA CONSENSUS A TATA TRUSTS & COPENHAGEN CONSENSUS CENTER PARTNERSHIP

info@copenhagenconsensus.com
www.copenhagenconsensus.com

This work has been produced as a part of the Andhra Pradesh Priorities project under the larger, India Consensus project.

This project is undertaken in partnership with Tata Trusts.

Cost-Benefit Analysis of Skill Development Interventions in Andhra Pradesh

Andhra Pradesh Priorities
An India Consensus Prioritization Project

Mansi Arora

Rajesh Chakrabarti

Kushal Sagar Prakash[1]

Sunay Policy Advisory

Working paper as of March 14, 2018

[1] We thank Brad Wong for amazing guidance during this work and Ramita Iyer for absolutely fabulous research assistance.

List of Tables and Exhibits

Academic Abstract

The paper uses earnings data from the Fifth Annual Employment -Unemployment Survey (2015-16), government specific reports and annual budgets, along with existing studies to conduct a cost-benefit analysis of three skill-related interventions: Vocational Training, Apprenticeship and Support to SMEs. At a 5% social discount rate, the benefit-cost ratio of vocational training is around 16 against 11 for apprenticeship and 6 for support given to SMEs. Given the lack of basic skilling indicators in India, these results are based on a series of assumptions regarding the structure of skilling costs and benefits in the country.

Policy Abstract

The Problem and current efforts

As the youngest major country in the world, India presently has just 2.3 percent of its workforce with some kind of formal skills training. According to government's skill gap analysis report, approximately 119 million skilled workers will be needed in the 24 key sectors of the economy by 2022. For the next two decades, over 12 million youth are expected to enter India's labor force. For India to cash in on its demographic dividend, its needs to create more jobs and educate, train and impart skills to the youth on priority.

According to National Skill Development Corporation (NSDC) estimates of 2012, Andhra Pradesh has a big need for skill development. Between 2017 and 2022, about 21 lakh individuals are expected to join the state’s workforce, with more than 97 percent of them being either totally or partially unskilled. The demand of individuals on the other hand would increase in a way where Andhra Pradesh would need to skill about 50 percent of its workforce entering the labour market by 2022. Given the present situation, the state is to have an excess of minimally skilled manpower and a deficit in skilled manpower (National Skill Development Corporation, 2012).

AP has an integrated skilling initiative which aims at building job specific skills among the unemployed population, to provide them with better placement opportunities. For its implementation, an exclusive Public Private Partnership (PPP) corporation called Andhra Pradesh Skill Development Corporation is established under Knowledge and Skills Mission in Andhra Pradesh. Andhra Pradesh State Skill Development Corporation (APSSDC), a unique

PPP organization to promote the skill-development and entrepreneurship in the state, aims to skill 20 million people in the span of 15 years. Currently, APSSDC has 371 participating schools, 540 Employability Skill Development Centers in degree colleges, 130 Skill Development centers in Engineering Colleges, 40 Siemens centers, 781 trained faculty and about 5.4 lakh trained students (APSSDC, n.d.).

Far more, however, is both possible and essential. Here we assess and compare, using benefit-cost ratio, three possible policy interventions – vocational training, apprenticeship and support to MSMEs, as alternative measures to promote skill development.

Intervention 1: Vocational Training

Vocational training is training that emphasizes the skills and knowledge required for a particular trade, craft or job function. These courses provide job-specific technical training, with hands-on instructions. In India, the Ministry of Skill Development and Entrepreneurship (MSDE) promotes vocational training through various schemes like, Craftsmen Training Scheme (CTS) and Skill Development Initiative Scheme (SDIS). Depending on the trade, the CTS courses range from anywhere between six months to four years, while SDIS courses which run from four weeks to six months are of much shorter duration.

The benefit of education is measured by the difference of what the vocational training graduate produces and that of a control group of graduates with a lower level of education. In empirical applications of human capital theory, earnings have been used as a proxy of graduate productivity (Psacharopoulos, 1995).

For our paper, we estimate the benefit of vocational training as follows.

Benefit = Mean income of vocational training graduates — Mean income of school graduates without vocational training

Our analysis shows that over a working life from 18 to 59, the average individual in AP with vocational education will earn 7.2 lakh rupees more than an equivalent individual without vocational education (at 5% discount rate). This accounts for expected income growth as well as changing labour force participation and unemployment over the life cycle.

The cost of vocational training includes the costs to all parties of delivering vocational training. This implies, the cost to the individual (Training fees, charges for school materials, opportunity cost of education) as well as the cost to the government (Funding of educational institutions, curriculum development, administration costs, stipend, certification and assessment) of providing vocational training. Assuming a 40% drop out rate, the costs to the government per skilled person are 1118 rupees, while for students the cost is 0.43 lakh rupees, ~40% of which represents foregone earnings.

We have assumed the average duration of a vocational training course to be one year and used the costs and benefits data for the year 2015-16. We have, however, also provided benefit to cost ratios for scenarios representing different durations of skill training.

Intervention 2: Apprenticeship

'Apprenticeship' means training programmes that combine vocational education with work-based learning for an intermediate occupational skill (i.e., more than routinized job training), and that are subject to externally imposed training standards, particularly for their workplace component. It is the oldest form of skills transfer as the modality of skills development, which is closest to companies and employers.

In India, apprenticeship is regulated by the Apprentices Act, 1961. The Act is based on the principle of 'learning by doing'. Government of India recently introduced a few amendments to this Act as well. According to the Apprentices Act, employers who fall under the purview of the Apprentices Act, with 40 or more employees, is required to appoint between 2.5 percent to 10 percent of the average strength of the workforce in the preceding financial year as apprentices for each financial year. Apprenticeships are time-based, with duration ranging from six months to four years.

The rationale behind cost and benefit of apprenticeship is similar to that of vocational training. The cost of providing a 1 year apprenticeship includes the following:

- Cost to the individual of 0.16 lakh rupees representing foregone earnings as an unskilled worker less the stipend paid during the apprenticeship
- Cost to the employer of 1.5 lakh rupees representing apprentice salaries, supervision and training costs, administrative costs, and

- Cost to the government of 0.2 lakh rupees representing costs associated with reimbursing the employers

The total cost of each apprenticeship is therefore 1.9 lakh rupees.

The benefits of apprenticeship include the benefit to the individual as well as the benefit to the employer.

- Benefit to the individual after the apprenticeship of 11.2 lakhs: Incremental mean earnings of a full-time worker who undergoes apprenticeship from ages 18-59, adjusting for expected income growth as well as changing labour force participation and unemployment over the life cycle.
- Benefit to the employer during the apprenticeship of 2.2 lakh rupees: Productive workforce, contribution to revenue, cost saved for recruitment through retention (no need to train new workers), and recruitment of people with demonstrated capabilities in carrying out efficient and productive work.

The total benefit of each apprenticeship is therefore 13.4 lakh rupees

Intervention 3: Support to SMEs

According to the World Bank's International Finance Corporation (IFC) jobs in Small and Medium Enterprises (SME) account for more than half of all formal employment world-wide (International Finance Corporation, 2013). Across developing countries as a whole this number averages as high as 66%. This has been the case for India too. SMEs in India employ nearly 40% of the work force and constitute 37% of GDP. The global experience also demonstrates that job creation by SMEs is not always a given unless aided by strong and supportive policies. Globally, a wide variety of policies around several core themes such as access to capital, worldwide markets, technology and innovation and a supportive business ecosystem have been utilized to aid SME growth and job creation.

In India too, the Ministry of Micro, Small and Medium Enterprises (MSME) has implemented a variety of policies and implementation schemes intended to aid the creation and growth of small and medium enterprises. It promotes the growth and development of the MSME sector by providing support to enhance competitiveness of the MSMEs.

Because of difficulty in quantifying the costs and benefits for credit support policies to SMEs and lack of available data, we have referred to the limited existing literature in this area.

Banerjee and Duflo, (2008) suggest that one rupee of loan increases profit before interest payment by 0.89 rupees and this is used as a proxy for benefit to the SME. The cost of credit which is the summation of cost of borrowing, default rate and admin cost, is 16 rupees for every 100 rupees lent to the SME. The BCR for this intervention comes out to 5.56.

BCR Table

The Benefit-cost ratio (BCR) for the three initiatives are summarized below.

Summary BCR Table

Interventions	Benefit per individual / SME (Rs.)	Cost per individual / SME (Rs.)	BCR	Quality of Evidence
Vocational Training	716,403	43,818	16.3	Medium
Apprenticeship	1,337,491	186,218	7.2	Medium
Support to SMEs	-	-	5.6	Limited

Source: Excel spreadsheet accompanying this paper
Note: All figures assume a 5% discount rate

Scaling up the interventions

According to the Andhra Pradesh National Skill Development Corporation (NSDC) skill gap report, there is an excess demand for 22.5 lakh skilled workers in Andhra Pradesh for the 2017-22. Using this to estimate the number of people that need to be skilled (either vocational training or apprenticeship) per year, we can identify the scaled up costs of both interventions. Benefits, costs and net gain from the two such scaled-up interventions are reported in the table below.

Scaled up costs and benefits for Interventions

Interventions	Benefits per year, crore	Costs per year, crore	BCR
Vocational Training	32,238	1,972	16.3
Apprenticeship	60,187	8,380	7.2

Note: All figures assume a 5% discount rate

Introduction

The criticality of skill development to India's labour market has been underlined by virtually every serious study in the area for well over a decade if not for much longer. From the establishment of the NSDC in 2009 to the adoption of Skill India as a key policy thrust of the current government, the skill development has continued its journey to the centre-stage of economic policy in the country. Notwithstanding its increasing centrality, however, the dent that the government skill programs have made on the real challenge so far has been marginal at best. India is currently facing a paradoxical situation where a large population of youth is entering the labour market looking for employment and on the other hand, industries claim to have a lack of appropriately skilled manpower. This reflects the criticality of skill development to enhance the employability of the growing young population (Pathak, 2016). The country has been undertaking several steps in this direction since then. Schemes such as the Pradhan Mantri Kaushal Vikas Yojana (PMKVY), Skill Loan Scheme (SLS) and Rural India Skill (RIS) among others are reflective of this. However, it still has an enormous potential to tap onto its youth. The challenge of imparting skills to the vast majority of India's gigantic labor force in a short window of time before the demographic deluge turns into a demographic disaster remains as acute and intractable as ever. Nevertheless, this is a battle that India simply cannot afford to lose.

Achieving efficiency in use of limited resources to bring about maximum impact should, therefore, be a key objective for India. It is imperative that policy analysis helps identify the best intervention that can maximize the "bang for the buck" for the very costly marginal rupee that India decides to spend in skilling its workforce – a rupee that could have been equally importantly spent in health, education, sanitation, or economic impetus to industry.

Vocational education is part of the concurrent list of the subjects in India implying that both centre and the states can legislate on it. While skill development is undeniably a major national level challenge for Indian policy makers, the economic reality of each of the 29 states in the Indian union is quite unique and the likely economic impact of alternative policy interventions are likely to be strongly linked to the conditions in the states.

The current paper aims to focus on three different interventions in the state of Andhra Pradesh (India's tenth largest state by population, home to well over 50 million people) and

assess their relative effectiveness using the benefit-cost ratio approach. The three interventions the paper will concentrate on are:

- Vocational training
- Apprenticeship
- Support to MSMEs

For each intervention, the paper will give a brief description about the intervention, provide the empirical findings on the intervention as found in the existing literature, and then present the BCR in the context of Andhra Pradesh.

Theory

A program's benefit-cost ratio (BCR), measured as the ratio of the discounted present value of program benefits to the discounted present value of program costs, is widely used to evaluate a program in policy discussions around the world. It provides a sense of how much benefits are generated per dollar of costs. This is expressed as:

$$BCR = \frac{\sum_{t=1}^{t=n} \frac{B_t}{(1+r)^t}}{\sum_{t=1}^{t=n} \frac{C_t}{(1+r)^t}}$$

A BCR greater than 1 indicates that the program generates net benefits and a BCR less than 1 implies the costs of undertaking the program exceed the benefits generated by it. A ranking of BCRs of alternative policy interventions, therefore provides policymakers with a metric to compare and rank the options before them.

Vocational Training

Description of Vocational Training in India

The Ministry of Skill Development and Entrepreneurship (MSDE) is responsible for coordinating skilling initiatives in India and the Directorate General of Employment & Training (DGE&T) under it is an apex organization for development and coordination of the vocational training to the employable youth in the country and to provide skilled manpower to the

industry. It promotes vocational training through various schemes like, Craftsmen Training Scheme (CTS) and Skill Development Initiative Scheme (SDIS). In CTS, training is provided in 70 engineering and 63 non-engineering trades in the Industrial Training Institutes (ITIs). Some of the trades are- welder, electrician, fitter, wireman, carpenter, etc. The duration of CTS courses ranges from six months to four years, depending on the trade and entry qualification varies from 8th to 12th class pass-out. The courses on Modular Employable Skills under the SDIS are of shorter duration and range from four weeks to six months, provided by Vocational Training Providers (VTPs). Presently, there are 613 modules covering 70 sectors.

Literature Review

Over the years, a sizeable international literature has accumulated in the skill development area, with some progress even in the Indian and other developing country settings. This section attempts a brief overview of the literature, largely to provide a backdrop for comparison to the findings in Andhra Pradesh. The issues involved are multi-dimensional and the review is arranged, to a large extent, by questions.

Vocational training is training that emphasizes the skills and knowledge required for a particular trade, craft or job function. It is also known as career and technical education (CTE) or technical and vocational education and training (TVET). These courses provide job-specific technical training, with hands-on instructions. In job searches, applicants who have undergone vocational training have an edge over others since they already possess the required skill and certifiable knowledge that is required to enter the field. While some students forego traditional academic education and take up vocational training in high school, others receive training either in college or at trade schools for adults.

Vocational training vs. general education – which pays more? It is well established that, for many countries, the wage returns to academic qualifications are significantly higher than the returns to vocational qualifications, government training programs and adult skills training (Blundell, Dearden and Sianesi, 2005; Dearden et al., 2002; Dickerson, 2005; Carneiro and Heckman, 2003).

Returns to vocational education: Overall, it is difficult to show a causal relation between training and changes in sales volume, productivity and other profit measures of firms because

there are many factors besides training, that can influence them (Lankard and Brown, 2001; Moy and McDonald, 2000). The same holds for the correlation between initial training and benefits accruing to the individual later in life as it is difficult to isolate the effect of VET from other variables that might have an impact on performance.

Based on England's Labour Force Survey, Jenkins et al., 2007 find negative average returns to National Vocational Qualification level 2 and there is less evidence of any association between vocational qualification level 2 and probability of employment. However, level 3 qualifications are associated with a higher probability of employment.

Using the student outcomes survey in Australia, Karmel and Nguyen, 2006 compare students that have only partially completed VET certificate and VET graduates and find positive association between the highest (VET) education level and employment.

An OECD report on the subject concluded that it is an open question whether it is worthwhile to invest in vocational and technical education (Hoeckel, 2008). It states that though there is demand for blue-collar workers (i.e. VET graduates) in today's economies, VET is costly compared to general education.

An International Institute for Education Planning case study (Lauglo, 1993) on the vocational systems in Germany, Japan and Sweden found that short tailor-made courses have a higher unit cost than a stable continuous process.

A study on the analysis and benefits of Vocational Education and Training in EU undertaken by European Centre for Development of Vocational Training (2011) recognized that the interplay between institutions, legislation and practice prevented the coordination of VET and its research in a way that would benefit policy making. Some other countries also faced the problem of institutional arrangements. The study concluded that with proper institutional arrangements and proper synthesis of the entire system, the economic benefits of VET are widespread. They result in positive impacts on wages, employment, mobility as well as employment opportunities.

How to improve matters: A study undertaken on the vocational training and education system in Maharashtra (Mazumdar, 2012) suggested an effective administrative setup to be established through the passing of a separate Act at the state level for the purpose of creating Vocational Universities, in accordance to the PPP Model.

It is widely believed that some of the major problems in the VET sector in India lay in employability and demand and supply matching, the requirements of the informal sector, financing, the state government's role and horizontal and vertical mobility among others. Education patterns at the school level should be redesigned in order to facilitate skill development as well as to promote and expand research in educational institutions.

Calculation of Costs and Benefits

Accurate measurement of costs and benefits of the policy interventions considered, naturally lay at the heart of the exercise undertaken here. This, however, is not an easy task. Costs are incurred by government, individuals and organizations, and similarly benefits accrue to all three. Uncontested methods of capturing and measuring the externalities created, however, are still beyond the available methodologies employed in the literature.

Also, the scope of our exercise here is primarily a secondary one, focusing on extant studies rather than undertaking original research. The papers covered, typically deal with specific aspects rather than comprehensively estimating costs and benefits associated with the policy interventions in question. Almost no literature is available at the state level and papers citing national level statistics need to bridge non-uniform observation periods and regions. Assumptions, sometimes sweeping, are therefore necessitated to ascribe rupee values to complex, unobservable variables using plausible proxies. Inevitably then, the individual estimates made are associated with broad confidence intervals. As such, the comparability of resulting BCRs is at a level of degrees of magnitude rather than of their simple numerical values. In addition to using extant research, we have, however, used some recent government collected data to estimate a few key values in the exercise.

For the calculation of benefits, we referred to the Fifth Annual Employment- Unemployment (2015-16) unit level data. The Annual Employment-Unemployment Survey is a household survey conducted by the Labour Bureau (under the Ministry of Labour and Employment) in all

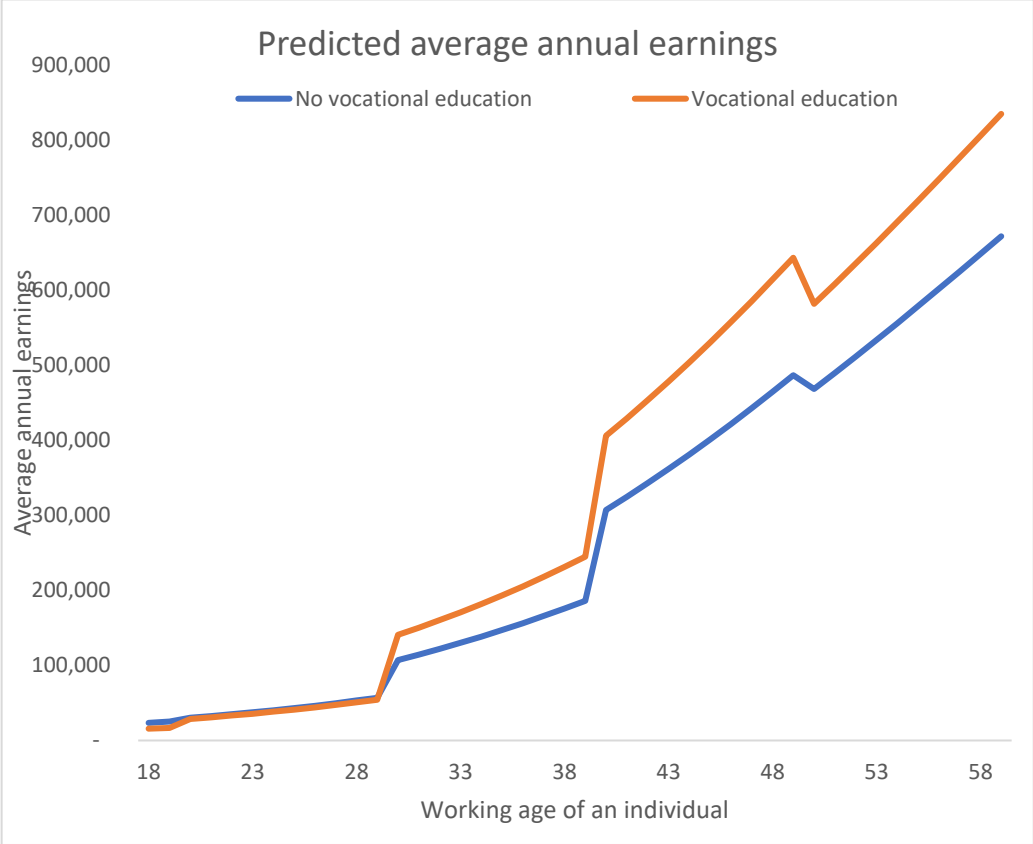
the States/UTs and covers all the districts. The survey covered a total sample of 1,56,563 households and from these households 7,81,793 members were queried. The annual survey throws important information on the various labour force related parameters such as labour force participation rate, unemployment rate, youth employment and unemployment rates, etc. and the data can be disaggregated by the sector of work as well as by region (states). We filtered out the data for Andhra Pradesh and using the appropriate level of educational qualification, estimated the earnings for people who have received vocational training and those who haven't.

There are total of 2662 observations for Andhra Pradesh, people who have completed middle school. Out of these 2662 people, 2490 people have not received any kind of vocational training and only the rest 172 people have undergone vocational training. We use the difference in the mean income of middle- school graduates with vocational training and middle school graduates without vocational training, adjusted for unemployment rate, labour force participation and annual growth rate in income to arrive at the benefit of vocational training. Unemployment and labour force participation by ten year age have been extracted from NSS 68 (2011-2012) and income growth is based on Andhra Pradesh Priorities Project projections.

The graph below depicts the predicted age earning profiles of an 18 year old in Andhra Pradesh with VT and without VT adjusted for income growth, labour force particpation and unemployment.[2] Due to limited number of observations for those with VT, we have used the average earnings for ten-year age groups, rather than each individual age, to calculate the age earnings profile. This explains the discontinuities at age 21, 31, 41 and 51 where there is an assumed change in both the average earnings for those working, and the labour force participation rate. The lower average wages for individuals in their 50s, relative to those in their 40s, is entirely explained by a reduced labour force participation rate for that age group, not that more experienced individuals earn less.

[2] The inherent assumption behind this graph, and which is also standard in the returns to education literature, is that the earnings structure across ages that exists today will persist into the future.

Of note is that earnings of vocational education graduates are indistinguishable from their non-vocationally educated peers until they enter their 30s. This might partially explain the reluctance of young people in the state to enter and stay in vocational education programs.



Source: Spreadsheet accompanying this paper.

The cost of vocational training will include the costs to all parties of delivering vocational training. This implies, the cost to the individual as well as the cost to the government of providing vocational training. Since vocational training comes under Ministry of Skill Development and Entrepreneurship (MSDE) we are using the total expenditure incurred by the ministry in the year 2015-16 and dividing it by the number of people skilled in that year to calculate the per capita cost to the government of providing vocational training.

The cost to the individual has two components- direct cost and indirect cost. The direct cost to the individual consists of the training cost, for which we have used the tuition/training fees charged by the government and private vocational training institutes, Industrial Training

Institutes (ITIs). The indirect cost is the opportunity cost of availing vocational training, it is the income foregone while pursuing vocational training.

We have adjusted both the government and individual cost for the dropout rate which we have assumed to be 40%. We assume the person starts working at the age of 18 and retires at the age of 59 and the average duration of the vocational training course is one year.

Estimating costs and benefits using different discount rates gave the benefit-cost ratios as reported in the table below.

BCR for Different Discount Rates

Discount	Benefit per student (INR)	Cost per student (INR)	BCR
3%	1,252,776	43,818	28.6
5%	716,403	43,818	16.3
8%	326,244	43,818	7.4

Source: Spreadsheet accompanying this paper

Sensitivity Analysis

The BCR values presented above depend, among other things, three variables – the discount rate, the age at which the training is imparted as well as the duration of the training. The table below provides a sensitivity analysis of the BCR with regard to these three variables. The age of training refers to the age at which the trainee starts the VT program. Data indicates that most VT programs are considerably less than a year in duration. The costs calculated in the table below are pro-rated from the cost estimates in the BCR calculations above.

BCR – Sensitivity Analysis

Discount rate			3%			5%			8%
Age of training (years)		18	25	35	18	25	35	18	25	35
Duration of VT	3 months	113.8	94.1	48.7	64.9	61.5	37.2	29.3	34.4	25.8
	6 months	57.0	47.1	24.3	32.5	30.8	18.5	14.7	17.2	12.8
	1 year	28.6	23.5	12.0	16.3	15.4	9.1	7.4	8.6	6.3
	2 years	15.0	12.3	6.1	8.9	8.3	4.8	4.3	4.8	3.4

Source: Spreadsheet accompanying this paper

Clearly the BCR rises dramatically as the duration of VT falls. This is because a shorter VT lowers costs to a fraction without any perceptible change in the discounted benefits. There is not much in the data to distinguish between the shorter and longer VT programmes, with the former being the predominant kind.

Apprenticeship

Description of Apprenticeship in India

Apprenticeship in India is regulated by the Apprentices Act, 1961. The primary objective of the act is to meet the skilled manpower requirements of the industry by fully utilizing the facilities available in the industry for imparting practical training. The Act is based on the principle of 'learning by doing'. According to the Apprentices Act, employers that have a training infrastructure (as laid down in the Act) and manpower strength of 40 or more are obligated to engage apprentices. The employers can engage apprentices in a band of 2.5% to 10% of total strength of the establishment. There are five different types of apprentices, trade, graduate, technician, vocational and optional trade apprentices. Directorate General of Training under Ministry of Skill Development and Entrepreneurship monitors the implementation of the Apprentices Act in respect of trade apprentices and Department of Education in the Ministry of Human Resource Development is responsible with respect to graduate, technician and vocational apprentice. The trade apprentices are given a monthly stipend by the employer and for the categories of graduate, technician and vocational apprentices, the cost of the stipend is borne by both the employer and the government

(Directorate General of Training (DGT), Ministry of Skill Development and Entrepreneurship, n.d.). Apprenticeships are time-based, with duration ranging from six months to four years.

Literature Review

'Apprenticeship' refers to at-workplace training programmes that combine vocational education with work-based learning for an intermediate occupational skill (i.e., more than routinized job training), and that are subject to externally imposed training standards, particularly for their workplace component. (Steedman, 2012). It is the oldest form of skills transfer as the modality of skills development, which is closest to companies and employers.

A significant number of studies have been commissioned in countries such as Germany, Switzerland, Austria, Canada, UK, Australia and USA to critically analyze the effective costs and benefits of apprenticeships and also to increase popularity of apprenticeships within the society and the business environment through the establishment of a business case for the same. The first benefit-cost analysis in Germany was conducted in the 1970s wherein the "Expert Commission on Costs and Financing of Vocational Education and Training" (also known as the "Edding-Commission") developed the conceptual framework.

Current cost-benefit analyses of apprentices are internationally conducted, typically based on a standard benefit-cost analysis of a single firm that hires apprentices. The benefit-cost model attempts to accurately capture the variety of monetary costs and benefits associated with apprenticeship training in specific sectors and industries. Net benefits and costs are usually calculated per apprentice, per year. There are only slight differences in approaches how costs and benefits are calculated between the countries. (Muehlemenn et al, 2013), in their recent comparative study on Cost-Benefits analyses in Apprenticeships in 4 European countries (Switzerland, UK, Germany and Austria), discuss the various approaches, methodologies and the influencing factors which lead to higher and lower net benefits and decisions of enterprises to hire).

Ryan and Unwin (2001) in their study of the apprenticeship systems in the UK considered the quality of apprenticeship training in terms of the length of training as well the acquisition of qualifications. On the other hand, McIntosh (2004) explicitly considered the empirical estimates of actual wage returns to apprenticeship. His analysis of the Labour Force Survey

between 1996 and 2002 showed that after completion of Apprenticeship, there was an increase in the wages of men by about 5-7% while for women, there was no change in the wage return.

Dearden et al. (2002) viewed the returns to apprenticeship as part of a wider study on the returns to academic and vocational qualifications. In their study, they found a very small and statistically insignificant effect on wages.

Similar studies have been undertaken in Germany as well. Cooke (2003) considered the impact of apprenticeship on Germany on both initial as well as starting wages in 1984 and the wage growth between 1984 and 1997. The results showed that the starting wages for apprentices and non-apprentices were similar. However, the wage growth for former apprentices was significantly higher. Winkelman (1997) compared the vocational training in Germany to the United States. He found that in Germany, more than 70% of the workforce had passed through apprenticeship while in the USA, only a mere 12% of the workforce had undergone a formal company training programme.

A Cost-Based Analysis of Registered Apprenticeship across 10 states in the US was conducted (Reed et al., 2012). It also addressed the question of women's experience with apprenticeship. It was found that women participate at lower rates than men and are concentrated in social services occupations, mainly in child care and health care. Suggestions such as undertaking targeted outreach campaigns, building women's basic skills, helping women develop accurate expectations about particular occupations, helping them arrange adequate child care, assisting employers to enforce policies to combat harassment at male-dominated worksites, and connecting women with their peers for support and encouragement were made to improve the situation for women in the Registered Apprenticeship programme.

Another study conducted by ILO in India (Rothboeck, 2014) to see if there exists a business case for apprenticeships, focuses on five cases from various industries (light and heavy manufacturing, the retail and hotel industry). The cases re-affirm that apprenticeships create more benefits than costs; investments are in fact often recovered during the apprenticeship period or immediately within the first year itself when apprentices are retained. For many enterprises benefit- cost aspects are one important aspect, which determines training

decisions. However, there are also other factors and cultural differences between enterprises, how they see and therefore invest into apprentices: some see apprenticeships more through a production lens, whereby they encourage apprentices to be workplace ready and productive as soon as possible. Other enterprises have a more long-term investment perspective, and aim at retention and employment opportunities.

Calculation of Costs and Benefits

The rationale behind cost and benefit of apprenticeship is similar to that of vocational training. The cost of providing apprenticeship includes the cost to the individual, employer and the state. The table below list downs the cost to different stakeholders and also mentions the sources which we have used for our analysis.

Costs to Various Stakeholders (with source)

Stakeholder	Cost	Data Source
Individual	Opportunity cost (foregone earnings of an unskilled worker)	The minimum wage of an unskilled worker as notified by the state government is used to calculate the opportunity cost
Employer	Apprentice salaries, supervision and training costs, administrative costs	Using an existing study conducted in India, we estimated the cost to the employer
Government	Reimbursing the employers, marketing and promotion costs	Budget of the government was used to evaluate the cost to the government

We are assuming the average apprenticeship training lasts for one year. The cost (opportunity) to the individual for undergoing apprenticeship is the income forgone of an unskilled worker for one year. We have used the minimum wage of an unskilled worker as a proxy to estimate the opportunity cost. We deduct the stipend he gets in that one year from the income foregone to arrive at the final cost to the individual. Using the study conducted by the ILO (Rothboeck, 2014) to assess the returns from apprenticeship training in India, we estimated the cost to the employer by taking the average cost of apprenticeship of all the case-studies. By dividing the government budget allocation to apprenticeship by the number of apprentices to be trained, we get the per capita cost to the government.

The benefits of apprenticeship include the benefit to the individual as well as the benefit to the employer. The table below list downs the benefit to different stakeholders and also mentions the sources we have referred to for our paper.

Benefits to Various Stakeholders (with source)

Stakeholder	Benefit	Data Source
Individual	Returns to wages, employment chances	Existing literature (secondary data) to estimate the earnings of a person who undergoes apprenticeship training and for a person who doesn't undergo apprenticeship we used the minimum wage of an unskilled worker as notified by the government
Employer	Productive workforce, contribution to revenue, cost saved for recruitment through retention -no need to train new workers	Using an existing study conducted in India, we estimated the benefit to the employer

The average of total benefit to different employers, as specified in the ILO study, was taken to evaluate the benefit to the employer. The ILO study also provides examples of post-apprenticeship productivity or wages, which we have used to estimate the increased income an individual gets after he undertakes apprenticeship. We subtract the income of an unskilled worker from the post-apprenticeship income to calculate the benefit of apprenticeship to the individual. We assume an average individual starts working at the age of 18 and works till he turns 59 and that every year income grows according to the Andhra Pradesh Priorities, an Indian Consensus Prioritization Project assumption. As above we adjust for labour force participation and unemployment across ten year age groups.

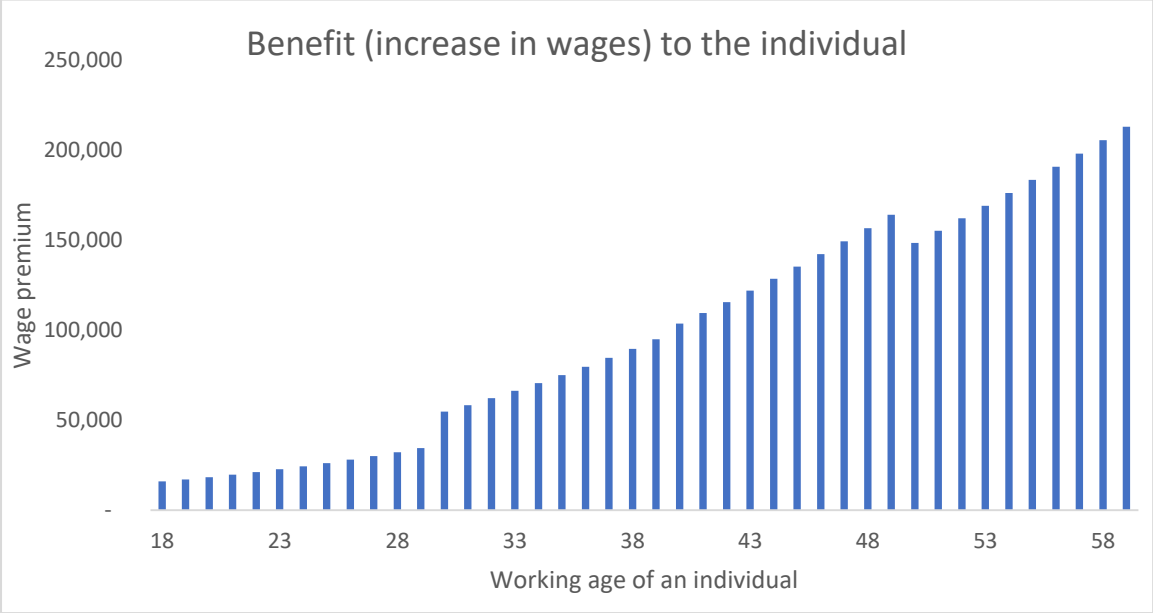
According to the ILO study, cost and benefit to the employer are given in the table below.

Cost and Benefit to Employer (ILO Study)

	Buhler India, Bangalore	Classic Moulds and Dies, Chennai	EFD Induction, Bangalore	Foodworld, Bangalore	Lemon Tree, Gurgaon - Housekeeping	Lemon Tree, Gurgaon - Cooks	Lemon Tree, Gurgaon - Clerks	Average of all the cases
Cost for training per apprentice	154364	135100	133250	105600	195133	168067	157367	149840
Benefits generated per apprentice	200806	162226	154232	143174	277455	293620	293620	217876
Productivity in year after 1st year of apprenticeship	82050	108000	120750	64800	110400	73600	66400	89429

Source: Spreadsheet accompanying this paper

Benefit to the individual, in terms of an increase in annual income is depicted in the image below.



Source: Spreadsheet accompanying this paper

Estimating the total costs and benefits using different discount rates gave the benefit-cost ratios as reported in the table below.

Costs and Benefits at Different Discount Rates

Discount	Benefit per apprentice (Rs.)	Cost per apprentice (Rs.)	BCR
3%	2,039,402	186,218	11.0
5%	1,337,491	186,218	7.2
8%	805,676	186,218	4.3

Source: Spreadsheet accompanying this paper

It is important to note here that the exercise above may not capture all the socio-economic benefits that possibly emerge from apprenticeship given its likely externalities, hence the BCR is likely to be an under-estimation. Several other associated questions are relevant as well. How do the BCRs work out at different skill levels and age brackets (typically apprenticeship happen at the beginning of work-life, but mid-career apprenticeships are conceivable as well.)? What role does selection play in determining these BCRs? How do HR practices enhance them? Unfortunately, data limitations prevent us from addressing these important issues.

Support to MSMEs

Description of Support to MSMEs in India

The need to create a large number of jobs consistently is one the biggest challenges facing India. The government, its policy-making arms, think tanks and industry organizations are all aligned that between 10-12 million jobs have to be created annually to take advantage of India's much vaunted demographic dividend. Globally, job creation on such scale has historically arisen out of small and medium enterprises (SME). According to the World Bank's International Finance Corporation (IFC) jobs in Small and Medium Enterprises (SME) account for over half of all formal employment world-wide[3]. Across developing countries as a whole this number averages as high as 66%. This has been the case for India too. SMEs in India employ nearly 40% of the workforce and constitute 37% of GDP. The global experience also demonstrates that job creation by SMEs is not always a given unless aided by strong and

[3]Assessing Private Sector Contribution to Job Creation and Poverty, IFC Study January 2013

supportive policies. Globally, a wide variety of policies around several core themes such as access to capital, worldwide markets, technology and innovation and a supportive business ecosystem have been utilized to aid SME growth and job creation.

In 2016, there were a reported 36 million micro, small and medium enterprises, employing over 80 million persons (MSME.Gov.in, 2016). . Indian SMEs account for 45% of the manufacturing output and 40% of exports, and more than a third of India's GDP (37%). The Ministry of Micro, Small and Medium Enterprises (MoMSME), is the apex body for the formulation and administration of rules, regulations and laws relating to micro, small and medium enterprises in India. MSME classifies enterprises into one of three categories based on their investment in plant and machinery (for manufacturing) and on equipment (for services enterprises). Primary responsibility for development SMEs in India resides with the states, with the central ministry responsible "to assist the States in their efforts to encourage entrepreneurship, employment and livelihood opportunities and enhance the competitiveness of MSMEs" (Press Information Bureau, GOI, 2015). Over the years, multiple governments have recognized the need for providing the SME sector strong support and constituted numerous committees to recommend appropriate action. Furthermore, individual states such as Andhra Pradesh[4], Rajasthan[5] have articulated their own MSME Policy.

The Ministry of Micro, Small and Medium Enterprises (MSME) in India has implemented a variety of policies and implementation schemes intended to aid the creation and growth of small and medium enterprises. It promotes the growth and development of the MSME sector by providing support to enhance competitiveness of the MSMEs. The various schemes undertaken by the Ministry range from providing adequate flow of credit from banks, support for technology upgradation and modernization, to integrated infrastructural facilities and assistance for better access to domestic and export markets. MSME continues to refine such policies through periodic industry inputs and study of global trends and experience.

[4]Micro Small and Medium Enterprises Policy, Govt. of Andhra Pradesh, 2015
[5]Rajasthan MSME Policy, 2015

Literature Review

SMEs have received significant research attention from economists in several countries. A study conducted by the Small Business Branch of Industry Canada looks into the cost- benefit analysis of the Canada Small Business Financing Program (CSBFP). CSBFP is a government funded program intended to improve the Canadian small and medium-sized enterprises' (SMEs) access to finance. It is a guarantee scheme that prevents losses to lenders by covering up to 85% of the loan value of defaulted loans. The program is funded through a mix of loan registration, administration fees and government contributions. The cost-benefit analysis focused on costs to administer the program including salaries and benefits of staff, direct operating expenditures, capital costs, and costs of loan defaults to lenders. It also focused on the benefits generated through the program to various agents, including additional salaries and wages paid to new employees, interest revenues earned by lenders, direct and indirect GDP impacts to the economy, and registration and administration fees collected by the program. The study concluded that the program generated significant net benefits for the Canadian economy. At 5% discount rate, they estimated a BCR of 5, which translates into five dollars' worth of benefits generated for the society for one-dollar cost borne by the program (Seens, 2015).

Calculation of Costs and Benefits

Based on the Canadian study of the CSBFP, similar cost-benefit analysis can be conducted for India. SMEs can be promoted in a wide variety of ways. Credit support is an important one among them, but certainly not the only one. However, due to lack of availability of similar data for India and specifically at the state level, we have been constrained to use the only available relevant study conducted in India to estimate the BCR for credit support to SMEs in the country. It is quite likely that there would be inter-state variations in the elasticities as well, but no data is available

A study by Abhijit Banerjee and Esther Duflo (Banerjee and Duflo, 2008) shows that directed credit to firms is used to finance more production- results in acceleration in the rate of growth of sales and profits. They find that elasticity of sales with respect to bank credit is 0.75 and that of cost is 0.70. For the average firm, this suggests that one rupee of loan increases

profit net of interest payment by 0.73 rupees, and hence profit before interest payment by 0.89 rupees.

The cost of credit includes the cost of borrowing for the lender, default rate and administration cost. The cost of borrowing for the lender, the bank is the repo rate, which is 6%. Assuming default rate to be 9% and admin cost to be 1%, the cost of credit equals 16 rupees for every 100 rupees lent to the SME.

Using the profit before interest payments from Banerjee and Duflo's study as estimated benefit for the SME (i.e. 89 rupees) and cost as 16 rupees, ***BCR equals 5.56***.

Conclusion

This paper has attempted to compare three policy interventions in the skill development space in Andhra Pradesh in order to assess their benefit-cost ratio and use the measure to identify the best policy intervention. It evaluates two of the major skilling schemes of the government on this metric – Vocational Training and Apprenticeship – and compares them with a third, indirect, intervention – of promoting SMEs. The paper conducts a cost-benefit analysis of the two schemes and concludes that at 5% discount rate, the benefit-cost ratio of vocational training is around 16, vs. 7 for apprenticeship.

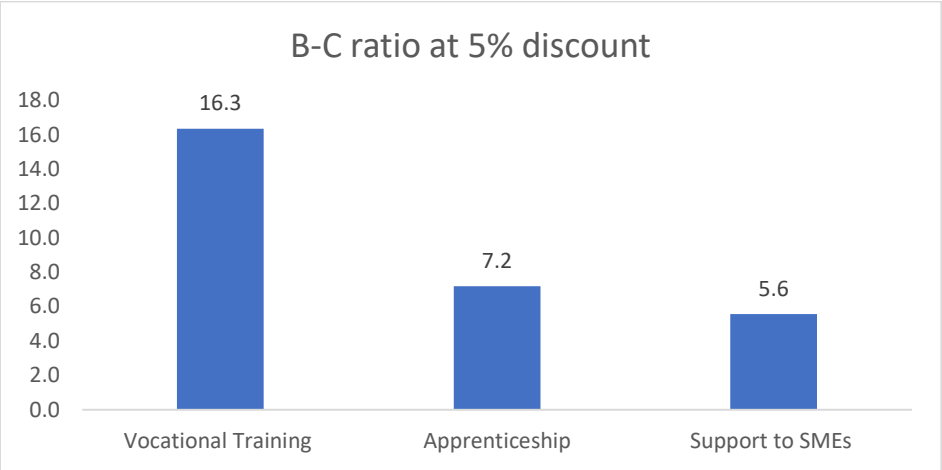
The greater than 1 BCRs validate the wide belief that apprenticeship and vocational training will help in solving India's problem of education and sustainability. To ensure effectiveness of these programmes, there must be strong and effective linkages between the industry and the trainer institute. Reworking of education and governmental efforts in the area must be undertaken.

Monitoring and evaluation is the integral to any programme or initiative. Thus, the government must undertake holistic evaluation of all skill development programmes in the country. This will enable it to identify the impact of the programme, assess alternate strategies, revamp the model to facilitate more efficiency and thereby bridge all the gaps in the implementation process.

It is important to bear in mind that the foregoing analysis is essentially partial in nature, with a strong implicit *ceteris paribus* assumption built in. There may very well be general

equilibrium effects ignored here, effects that can be significant, particularly for a state. Encouragement to SME for instance may cause inter-state migration or more likely greater investment in Andhra Pradesh from other states. Innovation – both job-reducing and skill-replacing – is almost certain to continue. Productivity gains from better skilled workers can produce second-round income effects. All these and other effects can affect the estimations made here, but are currently virtually impossible to predict or quantify in a meaningful way. These effects are likely to be more pronounced for skill development at an early age rather than those at later stages in work-life. With that caveat in mind, it is hoped that the ratios and resulting ranking provided herein would serve as a guide to policy-makers in Andhra Pradesh to build a more efficient skill development system for the state.

Summary Infographic



REFERENCES

APSSDC PMDC (n.d.). *APSSDC - Google India Code to Learn*. [online] Engineering.apssdc.in. Available at: http://engineering.apssdc.in/schools/

Banerjee, A and Duflo, E. (2008). *"What Is Middle Class about the Middle Classes around the World?"* Journal of Economic Perspectives, 22(2): 3-28.

Blundell, R., Dearden, L. and Sianesi, B. (2005). *Evaluating the Impact of Education on Earnings in the UK- Models, Methods and Results from the NCDS*. [online] Available at: https://www.ifs.org.uk/wps/wp0320.pdf

BusinessDictionary.com. Vocational Training. (n.d.). [Online] Available at: http://www.businessdictionary.com/definition/vocational-training.html. [Accessed 21 December 2017].

Carneiro, P. and J. Heckman (2003). *Human Capital Policy, in Inequality in America: What Role for Human Capital Policies*. [edited by James Heckman and Alan Krueger, MIT Press].

Cooke, L.P. (2003). *'A Comparison of Initial and Early Life Course Earnings of the German Secondary Education and Training System,' Economics of Education Review*, 22, 79-88.

Dearden, L., McIntosh, S., Myck, M. and Vignoles, A. (2002) *'The Returns to Academic and Vocational Qualifications in Britain,'* Bulletin of Economic Research, 54, 249-274.

Dickerson A P (2005). DTI. *A study on rates of return to investment in level 3 and higher qualifications.*

Directorate General of Training (DGT), Ministry of Skill Development and Entrepreneurship. (n.d.). *An Overview of Apprenticeship Training Scheme*. [online] Available at: http://dget.nic.in/content/innerpage/overview-apprenticeship-training-scheme.php

European Centre for the Development of Vocational Training, (2011). *The Benefits of Vocational Education and Training.* Luxembourg: European Centre for the Development of Vocational Training. Available at: http://www.cedefop.europa.eu/files/5510_en.pdf

FE Online (2017). *'With an average age of 29, India will be the world's youngest country by 2020'*. [online] The Financial Express. Available at: http://www.financialexpress.com/india-news/with-an-average-age-of-29-india-will-be-the-worlds-youngest-country-by-2020/603435/.

Goel, V. P (n.d.). *Technical and Vocational Education and Training (TVET) System in India for Sustainable Development.* [online] India: Ministry of Human Resource Development, Government of India. Available at: http://www.unevoc.unesco.org/up/India_Country_Paper.pdf

Government of Andhra Pradesh. (2015-20). *Micro Small and Medium Enterprises Policy*. [online] Available at: https://www.apindustries.gov.in/APIndus/Data/Industry1/MSME%20Policy%202015-20%20Booklet_Final_July%2008%202015.pdf

Government of India (1961). *Apprentice Act.* Available at: http://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/ApprenticeAct1961.pdf

Government of Rajasthan. (2015). *Rajasthan MSME Policy*. [online] Available at: http://resurgent.rajasthan.gov.in/uploads/media-centre/publication/rajasthan-MSME-policy-2015.pdf

Hoeckel, K. (2008). *Costs and Benefits in Vocational Education and Training*. [Online]. Available at: http://www.oecd.org/education/innovation-education/41538706.pdf

International Finance Corporation (2013). *Assessing Private Sector Contributions to Job Creation and Poverty Reduction.* Available at: https://www.ifc.org/wps/wcm/connect/0fe6e2804e2c0a8f8d3bad7a9dd66321/IFC_FULL+JOB+STUDY+REPORT_JAN2013_FINAL.pdf?MOD=AJPERES.

Jenkins, A., Healey, M. and Zetter, R. (2007). *Linking teaching and research in departments and disciplines.* York: The Higher Education Academy. Available at: www.heacademy.ac.uk/ourwork/research/teaching

Karmel, T. and Nyugen, N. (2006). *The Value of Completing a Vocational Education and Training Qualification.* National Centre for Vocational Education Research (NCVER). Available at: https://files.eric.ed.gov/fulltext/ED495916.pdf.

Lankard, B. and Brown (2001). *Return on Investment in Training. Myths and Realities.* ERIC Publications. Available at: https://files.eric.ed.gov/fulltext/ED459359.pdf

Lauglo, J. (1993). *Vocational Training: Analysis of Policy and Modes- Case studies of Sweden, Germany and Japan.* [online] Paris: International Institute for Educational Planning. Available at: http://unesdoc.unesco.org/images/0009/000963/096326eo.pdf

Majumdar, S S, (2012). *A Study of Significance of Vocationalization of Education and Skill Development in India- with special reference to the State of Maharashtra.* PhD Thesis. Pune: Symbiosis International University.

McIntosh, S. (2004) *'The Returns to Apprenticeship Training.'* Centre for Economic Performance Discussion Paper 622.

McIntosh, S. (2007). *A Cost-Benefit Analysis of Apprenticeships and Other Vocational Qualifications*. Research Report No 834. Department of Economics University of Sheffield.

Ministry of Labour and Employment Labour Bureau (2016). *Report on Fifth Annual Employment – Unemployment (2015-16)*. Volume 1. Chandigarh. Available at: http://labourbureaunew.gov.in/UserContent/EUS_5th_1.pdf

Moy, J. and McDonald, R. (2000). *Analysing Enterprise Returns on Training*. Available at: http://www.ncver.edu.au/research/proj/nr8012.pdf

Msme.gov.in. (2016). *MSME At a Glance* [online] Available at: http://msme.gov.in/sites/default/files/MSME_at_a_GLANCE_2016_Final.pdf

Muehlemann, S. and Wolter, S.C. (2013): *"Return on investment of apprenticeship systems for enterprises: Evidence from cost-benefit analyses".* Analytical Report for the European Commission prepared by the European Expert Network on Economics of Education (EENEE). Available at: http://www.eenee.de/portal/page/portal/EENEEContent/_IMPORT_TELECENTRUM/DOCS/EENEE_AR16.pdf

National Skill Development Corporation (2012). *Executive Summary for the State of Andhra Pradesh (2012-17, 2017-22)*. Available at: https://www.nsdcindia.org/sites/default/files/files/ap-executive-summary.pdf

Pathak, K. N. (2016). *Challenges of Skill Development in India*. [online] Pib.nic.in. Available at: http://pib.nic.in/newsite/printrelease.aspx?relid=151988

Press Information Bureau, Government of India (2015). *Ebook of MSME Launched.* Available at: http://pib.nic.in/newsite/PrintRelease.aspx?relid=114408.

Psacharopoulos, G. (1995). *The Profitability of Investment in Education: Concepts and Methods*. World Bank Document- Human Capital Development and Operations Policy. Available at: http://documents.worldbank.org/curated/en/909711468761947964/pdf/multi-page.pdf.

Reed, D., Yung-Hsu Liu, A. and Kleinman, R. (2012). An Effective Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States. *Mathematica* Reference Number: 06689.090 and 40096. Mathematica Policy Research.

Rothboeck, S. (2014). *Using Benefit Cost Calculations to Assess Returns from Apprenticeship Investment in India: Selected SME Case studies.* ILO Asia-Pacific Working Paper Series. International Labour Organisation.

Ryan, P. and Unwin, L. (2001) *'Apprenticeship in the British "Training Market"'*, National Institute Economic Review, no 178, October 2001.

Seens, D. (2015). *Cost Benefit Analysis of the Canada Small Business Financing Program*. Small Business Branch Research and Analysis Directorate. Available at: https://www.ic.gc.ca/eic/site/061.nsf/vwapj/CBA_CSBFP-ACA_PFPEC_eng.pdf/$file/CBA_CSBFP-ACA_PFPEC_eng.pdf

Steedman, H. (2012). *Overview of Apprenticeship Systems and Issues ILO Contribution to the G20 Task Force on Employment.* SSRN Paper. [online] Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2283123

Study.com. What Is Vocational Training? (n.d.) [Online] Available at: https://study.com/vocational_training.html. [Accessed 21 December 2017].

VocationalTrainingHQ.com (n.d.). Understanding Vocational Training – What Is Vocational Training. [ONLINE] Available at: http://www.vocationaltraininghq.com/what-is-vocational-training/. [Accessed 21 December 2017].

VocationalTrainingHQ.com (n.d.). *Vocational Training in India.* [ONLINE] Available at: http://www.vocationaltraininghq.com/vocational-training-in-india/. [Accessed 20 December 2017].

Winkelmann, R. (1997) 'How Young Workers Get Their Training: A Survey of Germany versus the United States.' *Journal of Population Economics*, Vol. 10, pages 159-170.

Sector Expert Review

Andhra Pradesh Priorities
An India Consensus Prioritization Project

Srinivas Surisetty PhD
Chairperson, Schools of Livelihoods & Development and Vocational Education,
Tata Institute of Social Sciences, Hyderabad Campus

Introduction

In the context of the decreasing non-farm sector including handloom, artisanal and crafts work reduced rural households complementing their farm incomes with returns from such engagement also diminished. So as the aspirations of the poor households to have a decent income though wage employment in the nonfarm sector.

Enhancing household level prosperity and wellbeing, especially of the rural poor households has been the endeavour of a series of development initiatives. The strategy of providing access to credit and services needed for stepping up Agriculture, Agri-allied activities and micro enterprises for a long period of time, however with limited success. The growth in the non-farm sector due to Industrialization provided wage employment opportunities in the Independent India, however only for the highly qualified.

Skill development for Job Creation

The economic growth of the Country could have remained jobless growth! Fortunately for a decade or so, in India wage employment opportunities started emerging also for the not so highly qualified. Opportunities for wage work relatively good salaries started opening up with the urban job markets doing well in select sectors such as Information Technology, Construction, Health, hospitality and so on also for those with a little expertise. So the way out for Livelihood security and for increased incomes is to diversify the skill sets of adult workers, youth-men and women to take up jobs without needing to compromise on the financial returns and/or work conditions. The growing need for entry level skill workers across these industries and the estimates on the job potential and industry requirements also alerted the Governments of both in the States and the Centre to give importance to Skills development, make human resources with skills available for the Industry. The findings of this Cost Benefit Analysis exercise also reconfirmed the need for Government to prioritize and continue to support Skill development.

Skill Development Programs

A wide range of models were introduced beyond the existing long term programs of Industrial Technical Institutes (ITIs), and other Institutions with a wide range of short duration courses. The LABS model of Dr. Reddy's Foundation, UPADHI of Andhra Pradesh

Urban Services Program (APUSP) in Andhra Pradesh early in the new millennium were worth a mention here while several others followed with some adaptations to those models reaching out to special segment of population such as persons with disability. The short duration courses trained and produced a large number of youth with skills to take up entry level jobs in a wide range of sectors. The Employment Guarantee and Marketing Missions and Rajeev Yuva Kiranalu of Government of Andhra Pradesh endorsed these programs and other such initiatives to take these interventions to a scale. There was a great response from the Industry also for these initiatives.

A few other models such as the National University Students Skill Development programs (NUSSD) and Jawahar Knowledge Centres (JKCs) in Andhra Pradesh aimed at enhancing skills of university and college students pursuing their graduation. They attempt for enhancing employability skills among the students. However it was a recent initiative and results are to be seen over a period of time.

Policy Implications

Success of Skill development programs has been phenomenal and the methodologies improved over a period of time. Accreditation and specification of standards to raise the quality of skill training also contributed to this success. Concern is about the jobs provided entry level gave jobs however the returns could not be decent and did not help realizing the aspirations of prosperity and well-being of poor household. Excepting for some sectors IT enabled Services (ITeS) did not provide decent incomes and work conditions.

First, higher education continues to be a factor for better opportunities. Those who had a higher degree such as graduation could enter in to the high value-high paid courses such as the Information Technology enabled Services (ITeS) also as Instructors/Teachers in that sector. Therefore ensuring youth continue their education to enhance their qualification and simultaneously pursuing a parallel degree or diploma needed to be supported by the Government.

Secondly the issue is not always because the sectors did not provide opportunities however the employers did not find enough business opportunities and could create jobs with decent

pay. May be I need to detail this a little more. The students went through a Bed-side (Patient) Assistance Course or hospitality management course for 4-6 months would have been equipped with all skills required, however their salaries depended on the agencies they are employed with. Those employed with agencies had better markets and high end charges for their services could offer a 5 digit per month salary and others had to limit with a meagre pay of less than four to five thousand rupees. In fact the course would have lost its sheen while the potential for jobs existed. That is how entrepreneurship with business development for complementing job generation and make the jobs decent and sustainable is much needed.

The Governments also started realizing that jobs need to be created by entrepreneurs who could find new business opportunities in various segments of the service sector and impetus is being given for the *start ups.* In any case Soft skills, sector specific hard skills and/or Entrepreneurial orientation and skills form the basis for employment. The priority for skill development is the fulcrum on which jobs can be created or success of youth pursuing a job.

As a new state, Andhra Pradesh faces a bright future, but it is still experiencing many acute social and economic development challenges. It has made great strides in creating a positive environment for business, and was recently ranked 2nd in India for ease of doing business. Yet, progress needs to be much faster if it is to achieve its ambitions of becoming the leading state in India in terms of social development and economic growth. With limited resources and time, it is crucial that focus is informed by what will do the most good for each rupee spent. The Andhra Pradesh Priorities project as part of the larger India Consensus – a partnership between Tata Trusts and the Copenhagen Consensus Center, will work with stakeholders across the state to identify, analyze, rank and disseminate the best solutions for the state. We will engage people and institutions from all parts of society, through newspapers, radio and TV, along with NGOs, decision makers, sector experts and businesses to propose the most relevant solutions to these challenges. We will commission some of the best economists in India, Andhra Pradesh, and the world to calculate the social, environmental and economic costs and benefits of these proposals

For more information visit www.APpriorities.com

COPENHAGEN CONSENSUS CENTER

Copenhagen Consensus Center is a think tank that investigates and publishes the best policies and investment opportunities based on social good (measured in dollars, but also incorporating e.g. welfare, health and environmental protection) for every dollar spent. The Copenhagen Consensus was conceived to address a fundamental, but overlooked topic in international development: In a world with limited budgets and attention spans, we need to find effective ways to do the most good for the most people. The Copenhagen Consensus works with 300+ of the world's top economists including 7 Nobel Laureates to prioritize solutions to the world's biggest problems, on the basis of data and cost-benefit analysis.